

Building the Capacity for Climate Services: Best Practices for Next Generation Climate Science Integrators

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introduction

- **Purpose:** advance understanding of how to train the next generation of climate science integrators.
- **Climate science integrators:** following Jacobs et al. (2005), climate scientists who specialize in helping decision makers in a wide variety of sectors of society to integrate the best available climate science into their decision making processes.
- **Methods:** journaling (early career); interviews ('first generation,' stakeholders); survey of training resources

Jacobs, K. L., G. Garfin, M. Lenart, 2005: More than just talk. *Environment* 47(9): 6-21.

How do they interact with decision makers?

- 1) information broker
- 2) informal consultant
- 3) short-term partner / capacity building
- 4) collaborator
- 5) networker/matchmaker

Ferguson, D. B., M. L. Finucane, V. W. Keener and G. Owen (in press). Evaluation to Advance Science Policy: Lessons from Pacific RISA and CLIMAS. *Climate in Context*. A. Parris and G. Garfin, eds. Wiley-Blackwell.

Michaels, 2009. Matching knowledge brokering strategies to environmental policy problems and settings. *Envir. Sci. & Policy* 12

Experienced Climate Science Integrators

- *Be a good listener*
- *Understand and respect the people you work with*
- *Understand the decision-making context*
- *Be humble*
- *Maintain credibility in both the scientific and stakeholder communities*
- *Enjoy interacting with people*
- *Be curious/interested in a variety of things*
- *Be patient*
- *Reflect on what you are doing*

- Extension
- Public Health
- Leopold Leadership
- National Conservation Training Center
- Ecohydrology

Extension Core Competencies

- Community and Social Action Processes
- Diversity/Pluralism/Multiculturalism
- Educational Programming
- Engagement
- Information and Education Delivery
- Interpersonal Relations
- Knowledge of the Organization
- Leadership
- Organizational Management
- Professionalism
- Subject Matter

Extension Onboarding

- Shadow colleagues in a neighboring county
- Key Extension principles
- Day-to-day operations of a county Extension office
- Complete Journal
- **New Agent Study Guide**
- Mentoring
- Articles and online trainings, including
 - Months 2-5: Adult learning theory, learning styles, rate of learning adoption
 - Months 6-12: Levels of client change and intended outcomes, evaluation
- Program development

<http://agrilife.org/od/employee-development/extension-onboarding/onboarding-notebook-draft/agent-resources/>

New Agent Study Guide

- Decision context
 - Demographics, physiography and climate, socioeconomic information, press and media information, key organizations and key leaders
- Program evaluation
- Making stakeholder visits
- Newspaper articles, radio, television
 - Get acquainted with the editors/broadcasters
- Conducting meetings
- Educational presentations, presentations of results

Brown University MPH Goals

Use knowledge of the structures, performance, quality, policy, and environmental **context of health and health care** to formulate solutions for health policy problems.

Demonstrate ability to **design research projects**, including those involving both primary data collection and analysis of secondary data.

Understand the importance of **collaborating** with policymakers, organizations, and communities to plan, conduct, and **translate health services research into policy and practice**.

Brown Univ. MPH Competencies

- Knowledge base
- Research
- Community service and intervention
 - Recognize and describe an emerging problem
 - Design, implement, monitor, and evaluate a program or intervention
 - Identify community service opportunities
 - Develop and maintain effective linkages with organizations and agencies in the community
- Communication and advocacy
- Information management
- Multiple tracks → research, statistics, services



U.S. Fish & Wildlife Service

National Conservation Training Center

Conserving the Nature of America



Search NCTC

SEARCH

Training

Priorities/Initiatives

Resources/News

Campus

Catalog

The [NCTC Course Catalog](#) includes **all** course offerings, including those that are **not yet scheduled**.

You can browse courses by **Curriculum Category** or search the [NCTC Course Catalog](#) to locate training.

Your Invitation to Learn - By Curriculum Category



Catalog (PDF)

- Academies
- Climate Change
- Communications
- Decision Analysis
- Ecology and Field Biology
- Employee Development
- Environmental Education
- Geospatial and Statistics
- Leadership
- Outreach and Partnerships
- Policy and Planning
- Safety
- Supervision
- Visitor Services
- Watercraft Safety - Motorboat Operator Certification Course (MOCC)
- Youth Leadership and Supervision
- Youth Outdoor Skills

Catalog Search - By Keyword

SEARCH

<http://training.fws.gov/>

Relevant Course Offerings

- Climate Change
- Communications
- Decision Analysis
- Employee Development
- Environmental Education
- Leadership
- Outreach and Partnerships
- Policy and Planning

Communications Training Program

- Critical Writing/Critical Thinking
- Internet Web Site Development
- Social Media and Digital Content
- Digital Communications
- Transforming Conflict to Improve and Sustain Collaborative Decision Making
- Negotiation Skills for Natural Resource Professionals
- Communicating Science - Distilling Your Message
- Communication, Outreach, and Visitor Services
- Tribal Trust Training

Employee Development Training Program

- Interpersonal skills
- Resolving disagreements
- Speaking persuasively
- Fostering teamwork
- Others' perspectives
- Personal strategy

Outreach and Partnerships Training Program

- Congressional Operations Field Course
- Congressional Operations Seminar
- Human Dimensions Foundations for Natural Resource Conservation
- Partnership and Community Collaboration: Managing by Network

Environmental Education Training Program

- Education Program Evaluation
- Tools for Reaching New Audiences
- Powerful Presentation Tools and Techniques
- Train-The-Trainer Training Tools for Non-Formal Educators
- Speech Writing for the Natural Resource Manager

Leopold Leadership Program

Forming a collaborative team	Leading change	Communicating complex ideas	Creating an action plan
<ul style="list-style-type: none">• Leadership styles	<ul style="list-style-type: none">• Applying a change management framework	<ul style="list-style-type: none">• Developing a message	<ul style="list-style-type: none">• Interviewing for information
<ul style="list-style-type: none">• Group problem-solving	<ul style="list-style-type: none">• Strategic thinking skills	<ul style="list-style-type: none">• Learning from journalists	<ul style="list-style-type: none">• Personal action plan for integrating and practicing skills
		<ul style="list-style-type: none">• Selecting an appropriate set of digital and print media tools for your audience	

Integrated Resources Management

Policy / Economics / Stakeholder Engagement

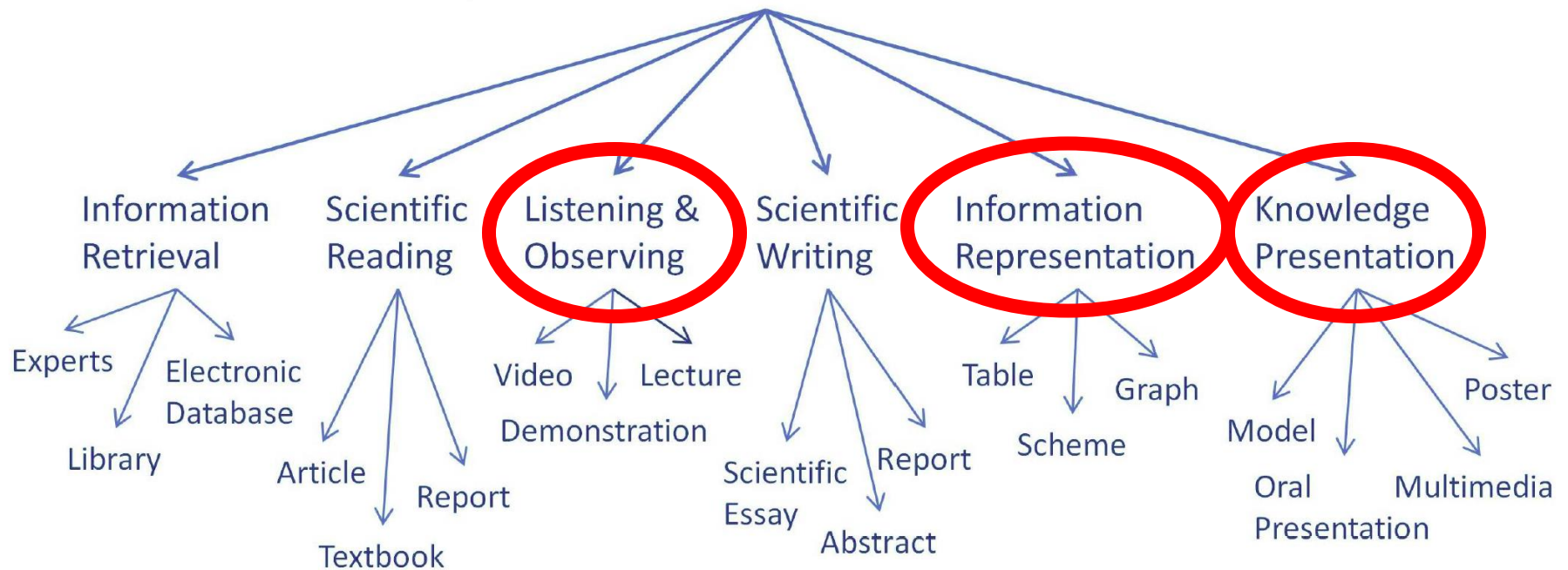
Creativity / Cooperation / Communication/ Leadership

Ecohydrology

Field Sampling / Monitoring /
Modeling / Data Analysis

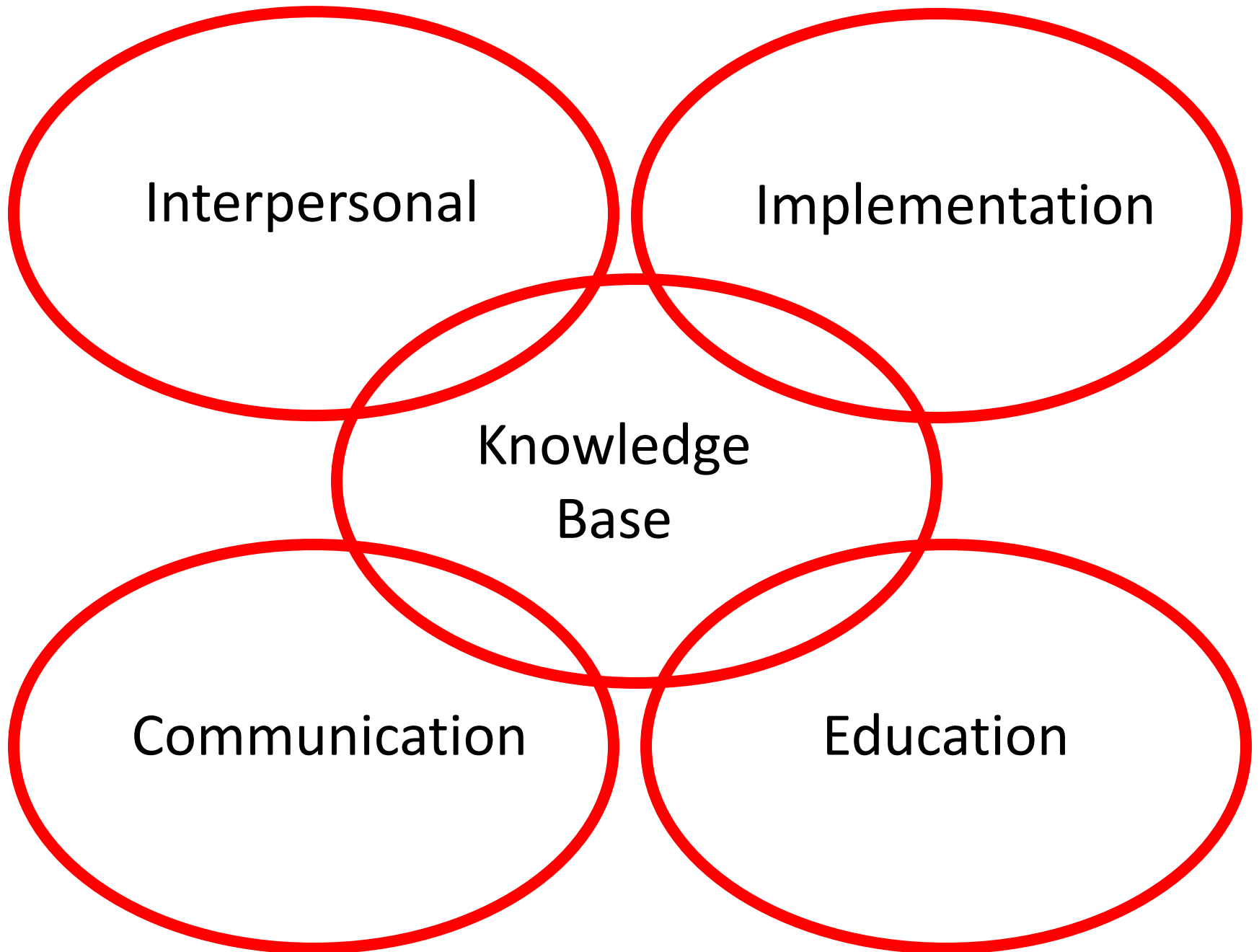
McClain et al. 2012. Training hydrologists to be ecohydrologists and play a leading role in environmental problem solving. HESS 16

Scope of Scientific Communication Skills



CSIs	Extension Competencies	Public Health Competencies
Be a good listener	Engagement, Diversity/Pluralism/Multiculturalism, Interpersonal Relations	Community Service, Communication
Understand and respect the people you work with	Diversity/Pluralism/Multiculturalism	Community Service, Communication
Understand the decision-making context	Community and Social Action Processes	Knowledge Base, Community Service
Be humble	Interpersonal Relations	Community Service, Communication
Maintain credibility in both the scientific and stakeholder communities	Subject Matter, Professionalism	Knowledge Base, Research
Enjoy interacting with people	Interpersonal Relations	Community Service, Communication
Be curious/interested in a variety of things	Professionalism	Community Service, Communication
Be patient	Interpersonal Relations	Community Service, Communication
Reflect on what you are doing	Engagement, Leadership, Knowledge of the Organization, Information and Education	Community Service, Communication

Skills	Maps onto
<i>Background in academic studies of boundary organizations, extension, etc.</i>	E, MPH
<i>Making good presentations (delivery, graphics)</i>	All
<i>Selling/pitching your program, your work, your career</i>	All
<i>Media relations and the art of the interview</i>	All
<i>Practicum in learning on the job, through an embedded/shadow/internship position with a resource management organization</i>	E, MPH
<i>The art of convening workshops, and meeting facilitation</i>	E, L
<i>Communication of science</i>	All
<i>Planning processes</i>	All
Collaboration and teamwork	All
Interpersonal skills, dialogue, negotiations	All
Decision context	All
Educational program design, evaluation, social science methods	E, MPH, NCTC
Learning theory	E
Problem solving and strategic thinking	All



How To Do It

- Onboarding, orientation
- Intensive training, boot camp
- Ongoing service learning
- Apprenticing, embedding, internships
- Formal training, student training
- Professional society networks



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and**

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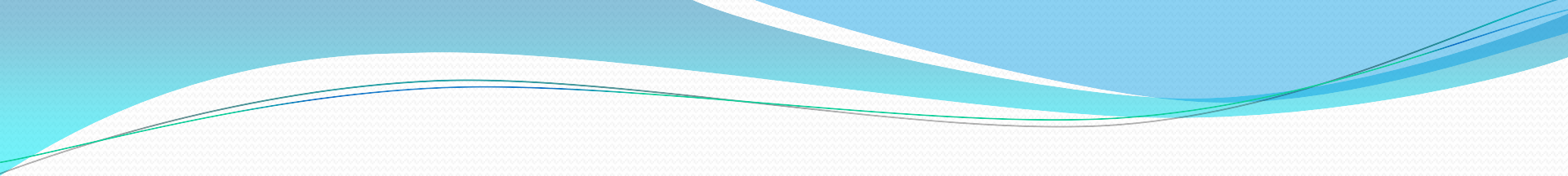
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Extra Slides

Table 1 – Brokering for knowing: spectrum of strategies for tapping expertise to use in decision making.			
Strategies	Intent	Examples of brokering techniques	Examples of how brokers can intervene
Inform	Disseminate content	Fact sheets; Web sites	To targeted decision makers; disseminate fact sheets, circulate addresses of web sites with a brief explanation of their potential utility
Consult	Seeks out known experts to advise on problem delineated by party seeking counsel	Meetings; Solicited assessments	Identify which decision makers would benefit from talking with which experts and facilitate the appropriate form of communication; Work with decision makers and those with the needed substantive expertise to frame what should be included and how to present the findings
Matchmake	Identify what expertise is needed, who can provide it and the best ways to make the connections	Introduce people to each other who would not otherwise meet	Identify sources of information, locate or create materials useful in decision making and pass it on
Engage	One party frames the discussion through terms of reference and for the life of the required decision making process, involves other parties in the substantive aspects of the problem on an as needed basis	Royal commissions; Technical committees, Secondments	Identify who needs to be engaged and how
Collaborate	Parties jointly frame the process of interaction and negotiate substance to address a distinct policy problem	Joint agreement	Facilitate collaboration
Build capacity	Parties jointly frame process of interaction and negotiate substance with intent of addressing multiple dimensions of a policy problem while considering what can be learned from doing so that is applicable to implications of the issue, future scenarios and related concerns	Co-management; Joint fact finding; Co-production of knowledge	Steward long-term professional relationships; Ensure institutional relationships

Michaels, 2009. Matching knowledge brokering strategies to environmental policy problems and settings. *Envir. Sci. & Policy* 12

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- 1) **Inform – disseminate content**
 - 2) **Consult - advise**
 - 3) **Matchmake – identify expertise**
 - 4) Engage – frame discussion, involve others
 - 5) **Collaborate – jointly framed problem**
 - 6) Build capacity – ensure institutional relationships



IN THIS SECTION

▶ Innovative Pilot Study Program

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UPCOMING EVENTS

For Researchers



A key function of the BCTR will be to generate extensive interest and engagement of CHE faculty in the development of translational research (TR) projects.

Such activities can involve providing support to experienced investigators that will increase the likelihood that a faculty member will receive funding for their TR project or will more readily complete a project and disseminate its results. For faculty with less experience doing translational research, the BCTR will provide proposal preparation assistance, training and technical support, and brokering collaborative relationships with other more experienced faculty.

Some activities related to faculty research include:



Outreach and Extension

[Outreach Home](#)

[Department and Centers Outreach](#)

[Tools for Translational Research](#)

[Evidence Based Living](#)

[Multimedia Library](#)



Tools for Translational Research

[CHE](#) > [Outreach](#) > Tools for Translational Research

Research Navigator Training Topics

[Introduction](#)

[New Models for Campus-Community Collaboration](#)

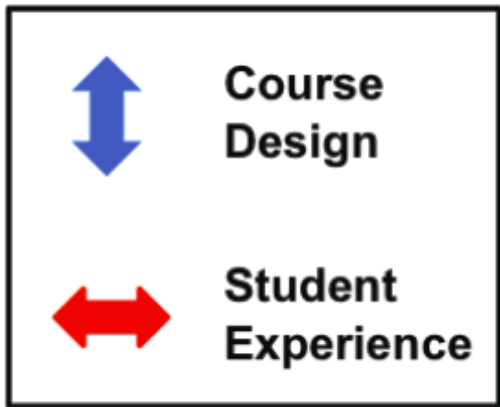
[Types of Research](#)

[Interacting with Faculty](#)

[Model Research-Practice Partnerships](#)

[Research Ethics](#)

[Financial Considerations](#)



Internal Expertise

Control content
Adjusted to student need

Individual course

Infused across curriculum



Depth
Focus
Expertise

Breadth
Diverse
Overview

Collaborate
Bring in expertise

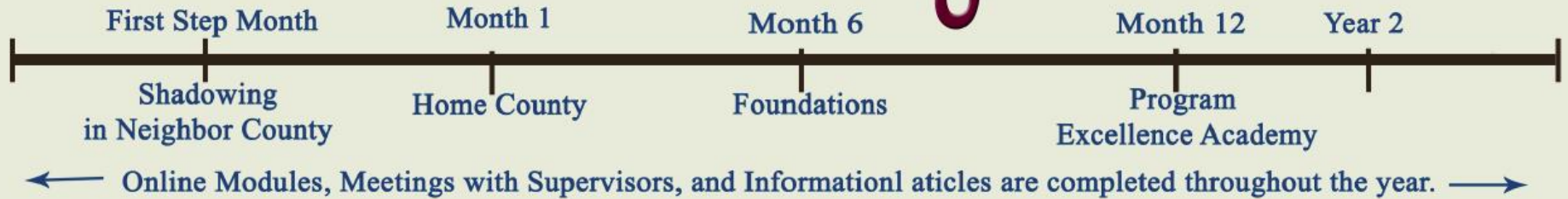
External content
Generic



Extension Onboarding

TEXAS A&M
AGRI LIFE
EXTENSION

Your two-year strategy for success!



Agent Resources

The following resources will help you understand Extension's onboarding strategy and give you tools to use during this time.

<u>Onboarding Strategy Flyer</u>	You're a new County Extension Agent, so where do you go from here? This document will provide you with a general overview of Extension's onboarding strategy.
<u>First Step Journal</u>	The purpose of FIRST STEP is to provide new agents with an immediate opportunity to develop a basic understanding of key Extension concepts, principles and practices. During FIRST STEP the responsibility of the new agents is to observe and experience the day-to-day operations of a typical county Extension office. The short journal is provided to log activities in which you participate and take notes that can help you when you get to your home county.
<u>New Agent Study Guide</u>	The Extension Agent Self Study Guide is a tool to be completed by new County Extension Agents within the first six months of employment. It is an organized plan of observation and participation under the guidance of District Extension Administrator, County Extension Director, Regional Program Director, Mentor and/or Co-worker.
<u>Mentoring in Extension</u>	The Mentoring Guidelines publication gives detail related to the purpose, philosophy, goals and participant responsibilities within the Texas A&M AgriLife Extension Mentor program. Mentors and Mentees will find this resource helpful in understanding the program and their role within it.
<u>New CEA</u>	These note pages have been created for new Agents to use during scheduled meetings with

▼ EMPLOYEE DEVELOPMENT

Employee Development

- ◊ Employee Development Team
- ◊ Associations and Publications
- ◊ Agent Onboarding
 - ◊ Mentoring Information
 - ◊ Onboarding Articles
 - ◊ Onboarding Notebook
 - ◊ Agent Resources
 - ◊ Supervisor Resources
 - ◊ Timeline Flow Charts
 - ◊ Online Resources
- ◊ Program Excellence Academy
 - ◊ April 2013
 - ◊ Images from April Foundations 2013
 - ◊ Images from Program Excellence Academy 2013

<http://agrillife.org/od/employee-development/extension-onboarding/onboarding-notebook-draft/agent-resources/>

Leopold Leadership Program

- Developing a repertoire of communications tools
- Developing stories that connect their research with their life experience;
- Experimenting with social media;
- Writing a blog post;
- Interviewing for information to fill gaps in their network needed to fulfill their vision for change;
- Incorporating what they've learned about collaboration, innovation, and communication into their work mentoring students and postdocs; and
- Expanding their skills in facilitating interdisciplinary groups.